GREEN POWER News

WAPA's Renewable Resources Program covering green power, reports, studies and funding

WESTERN AREA POWER ADMINISTRATION

Welcome to the *Green Power News Update.* This is a summary of the stories that ran during **May 2018**. New stories are added throughout the month to make sure you always know what is happening in our fast-changing industry. Check back often to see what's new!

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In this issue:

Green Power

California to require rooftop solar for new homes

The California Energy Commission approved the 2019 Building Energy Code on Wednesday, requiring renewable energy access for all new residential homes in the state starting in 2020.

- The code includes incentives for energy storage while mandating that the construction of new homes include advanced energy efficiency measures and rooftop solar.
- The mandate could require between 68 and 241 MW of annual distributed solar buildout, according to ClearView Energy Partners' research using 2017 data.
- All told, the new code is meant to save Californians a net $1.7 billion on energy bills, while advancing the state's efforts to build-out renewable energy, the commission said.

Source: Utility Dive, 5/9/18

Q&A with Andy Walker: The Ins and Outs of Renewable Energy Optimization

Andy Walker is a recently appointed research fellow at NREL and the creator of Renewable Energy Optimization (REO), for which he holds a patent. REO techniques inform institutions across the world, from businesses such as Frito-Lay to government policies such as the U.S. Air Force's approach to on-site generation. REO has since been developed by NREL staff to become the REopt tool. Andy's research has centered on renewable energy cost analysis and renewable building design. He also teaches at the University of Colorado Boulder, Colorado School of Mines, and Metropolitan State University of Denver. He has led the Solar Energy Division of the American Society of Mechanical Engineers (ASME), edited the Journal of Solar Energy Engineering, and is an ASME fellow.

The following is a discussion of REO's transition to REopt and what's on the way for the renewable energy planning software. This conversation has been edited for length.

Source: National Renewable Energy Laboratory, 4/30/18

Green Power Partnership Program Update

The EPA Green Power Partnership is a voluntary program encouraging organizations to use green power as a way to reduce the environmental impacts associated with conventional electricity use.

In this issue:

- EPA Concludes the 2017–18 College and University Green Power Challenge
- April 2018 Top Partner List Updates Posted
- 2017 Green Power Leadership Award Winner Spotlight – Stanford University

- Photo of the Month – Johnson & Johnson
- New GPP Resource!
- ICYMI: Introduction to the Local Government Solar Project Portal Webinar
- New NREL Training Resources for Local Governments
- Report: Companies signed deals for 1,731 MW of renewables in Q1

Source: EPA Green Power Partnership, 4/30/18

These huge new wind turbines are a marvel. They're also the future.

The latest model has blades longer than football fields.

The declining price of solar power gets more press, but there are big things happening in wind technology too. And I mean big.

The math on wind turbines is pretty simple: Bigger is better. Specifically, there are two ways to produce more power from the wind in a given area.

The first is with bigger rotors and blades to cover a wider area. That increases the capacity of the turbine, i.e., its total potential production.

The second is to get the blades up higher into the atmosphere, where the wind blows more steadily. That increases the turbine's "capacity factor," i.e., the amount of power it actually produces relative to its total potential (or more colloquially: how often it runs).

Source: Vox, 4/13/18

Utilities take note: Hybrid renewables projects are coming

An innovation in renewables generation that could change the way utilities think about meeting reliability and peak demand took some big steps forward in 2017.

Only a few U.S. utilities are pursuing hybrid projects that combine wind, solar and/or battery storage in various combinations. Kauai Island Utility Cooperative (KIUC) is operating a solar-plus-storage project that may be the first U.S. renewables-powered peaker plant. And Arizona Public Service (APS) just contracted with First Solar for what is said to be the first utility-scale renewables peaker plant.

Source: Utility Dive, 4/3/18

Thanks to blockchain, change is on the horizon for renewable energy & carbon markets

5 ways blockchain is poised to "upgrade" existing systems and open access to renewable energy across the globe

Renewable energy and carbon market industry leaders gathered in Amsterdam on March 13–14 for the annual REC Market Meeting. At this global expert meeting focused on energy

attribute tracking systems, representatives from 200+ organizations rallied around the notion of collaborative competition: the idea that all market participants, even industry competitors, stand to benefit from improvements to market fundamentals that increase investments in solar, wind, and other forms of renewably generated electricity. To advance this notion of collaborative competition, conference attendees called for greater transparency to enhance consumer choice as a means to unlock investments.

Source: Energy Web Foundation via Rocky Mountain Institute, 4/5/18

What makes a wind turbine break? NREL's drivetrain experts want to know.

As part of an investigation into turbine operational conditions most likely to cause drivetrain failures, the National Renewable Energy Laboratory (NREL) recently installed a new gearbox and main bearing in the U.S. Department of Energy-owned General Electric 1.5-megawatt SLE turbine.

National Renewable Energy Laboratory, 3/21/18

Proposed Texas rule highlights storage's challenges in bridging competitive, regulated energy markets

Energy storage’s unique ability to act as both generation and load makes it a round peg in the square peg board of utility regulation.

That mismatch is destined to come into sharper relief as a rulemaking on energy storage in Texas moves forward, highlighting some of the contentious issues the technology raises in competitive power markets.

Source: Utility Dive, 3/27/18

Wind and solar costs continue to drop below fossil fuels. What barriers remain for a low-carbon grid?

Wind and solar are now cheaper than virtually anyone predicted, and renewable technologies have reached an inflection point: Rapid cost declines made renewable energy the cheapest available sources of new electricity, even without subsidies, in 2017. In many locations across America, building new wind energy projects is cheaper than running existing coal-fired power plants.

Since utilities are still overwhelmingly planning for a lower-carbon more distributed grid, we must reconsider and reform the institutions impeding a high-renewables, low-cost, reliable grid. Siting and permitting, transmission construction and planning, utility business models, wholesale markets, finance policy, and distributed energy resource planning and compensation are all areas where policy lags behind technology and institutions threaten to stymie growth.

Source: Utility Dive, 3/21/18

A huge new record in the Southwest Power Pool

The Southwest Power Pool (SPP) just set a huge new wind penetration record: on March 16 a little over 60 percent of the system's electricity came from wind power. That's a big deal for a system that provides electricity to customers across 14 states.

SPP serves many states right smack in the middle of the country where wind continues to grow– Iowa, Kansas, and Oklahoma, among others—so it's no surprise that wind has routinely smashed penetration records over the past few months. In fact, SPP reports that wind has broken penetration records "six or seven" times in the past 90 days alone.

Source: Into the Wind, the AWEA blog; 3/22/18

Find more publications and webinars.

Reports and Studies

NREL Researchers Measure Impact of Eclipse on Electrical Grid

Despite temporary loss of nearly 6 gigawatts, stability and reliability was unaffected

During last summer's total eclipse, solar energy output in the West dropped by about 5.9 gigawatts (GW) according to new analysis from the Department of Energy's National Renewable Energy Laboratory (NREL).

The August 21, 2017, solar eclipse cast a shadow from Oregon to South Carolina, completely concealing the sun along a 70-mile-wide path and causing the rest of the continent to experience partial darkness. The event provided the opportunity for researchers to see the effects of an eclipse on the U.S. electrical grid, which has had a steady increase in power from photovoltaic (PV) systems.

Source: National Renewable Energy Laboratory, 5/9/18

Renewables Account for More Than 70% of Proposed Net Generation Additions Over Next Three Years

Wind, solar, and other renewable sources (i.e., biomass, geothermal, hydropower) accounted for almost 95% (i.e., 94.9%) of all new U.S. electrical generation placed into service in the first quarter of this year, according to a SUN DAY Campaign analysis of data released today by the U.S. Federal Energy Regulatory Commissions (FERC).

FERC's latest "Energy Infrastructure Update" (with summary statistics for January, February, and March 2018) shows that 16 new "units" of wind, totaling 1,793 megawatts (MW), came into service in the first three months of 2018 along with 92 units of solar (1,356-MW) for a total of 3,149-MW. In addition, there was one unit of geothermal steam (19-MW), five units of water (18-MW), and three units of biomass (3-MW).

Among non-renewable sources, six units of natural gas provided another 79-MW of new capacity along with five units of oil (10-MW), and one unit of nuclear (4-MW). There were also six units (80-MW) defined as "other" by FERC (e.g., fuel cells, batteries & storage). No capacity additions were reported for coal during the quarter.

FERC data also reveal that the total installed capacity of renewable energy sources now provides over one-fifth (i.e., 20.69%) of total available U.S. generating capacity. Combined, wind and solar alone exceed one-tenth (i.e., 10.44%) of installed capacity - a share greater than that of nuclear power (9.14%) or hydropower (8.52%) or oil (3.56%).

FERC's report further suggests that the rapid expansion and growing dominance of renewable energy sources will continue at least through April 2021. Proposed new net generating capacity (i.e., additions minus retirements) by renewables over the next three years totals 148,281-MW or 70.1% of the total (i.e., 211,621-MW). Proposed new net generating capacity by wind (85,625-MW) and solar (49,088-MW) alone are 63.7% of the total - supplemented by hydropower (11,824-MW), geothermal (1,130-MW), and biomass (614-MW).

Most of the remaining net proposed new generating capacity to be added between now and April 2021is accounted for by natural gas (74,624-MW - 35.3%). Net proposed additions by nuclear total only 1,831-MW while those from oil are just 268-MW. FERC also lists proposed new net generating capacity from waste heat (96-MW) and "other" sources (680-MW). Notably, the net generating capacity of coal would actually decline by 14,177-MW as 15,864-MW of coal capacity is retired, eclipsing just 1,687-MW of additions.

Source: Sun-Day Campaign, 5/2/18

Solar to jump 6% despite tariffs

The global solar PV market is set to grow 6 percent this year, despite tariffs enacted by President Trump.

GTM Research reported this morning that more than 100 gigawatts of photovoltaic capacity will be added for the first time ever, even though the world's largest solar markets — the United States, China, India and Japan — are expected to decline collectively 7 percent this year partly because of ongoing trade battles, the market research firm said.

Annual installations of at least 100 GW globally also are projected to continue through at least 2022, according to the report.

Source: Greenwire, 4/16/18

The two key questions about going to 100% renewables in Los Angeles

Will it be solar or more solar in Hollywood? And can solar star without fossil fuel backup?

In Hollywood, the big stars can sell a movie by themselves and Hollywood's utility wants to know if renewables are ready for stardom.

In 2016, the Los Angeles City Council asked the Los Angeles Department of Water and Power (LADWP) to study the possibility of moving to a 100% renewables resource mix. For renewables, this could be what Hollywood calls a “marquee moment.” Many see in renewables the 'star' quality to run the 'show' on their own.

Others worry that co-stars, in the form of backup fossil generation, will be needed into the 2040s if LADWP is to guarantee reliable electricity for its 1.5 million-plus customers. That's because if renewables get casted, LADWP faces a big challenge: Limits on regional transmission constrain LA's renewables choices largely to solar and more solar.

Source: Utility Dive, 4/5/18

Efficiency, DERs saving $2.6B in avoided transmission costs, CAISO says

The transmission plan approved last week may be more significant for the projects it recommended canceling, than for the projects approved. The recommendations follow a lengthy stakeholder process that included public comment.

"The changes were mainly due to changes in local area load forecasts, and strongly influenced by energy efficiency programs and increasing levels of residential, rooftop solar generation," the grid operator said in a statement. Another seven PG&E projects are either on hold or recommended to be delayed "pending further review in future transmission planning cycles."

Source: Utility Dive, 3/26/18

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Funding

Department of Energy Announces $72 Million to Advance High-Temperature Concentrating Solar Power Systems

Today, the U.S. Department of Energy (DOE) announced $72 million for new projects to advance high-temperature concentrating solar power (CSP) technologies. These projects will extend previous research on high-temperature components, develop them into integrated assemblies, and test these components and systems through a wide range of operational conditions.

CSP technologies use mirrors to reflect and concentrate sunlight onto a focused point where it is collected and converted into heat. This thermal energy can be stored and used to produce electricity whenever it is needed. The best commercially available technologies can only reach 565 °C. The high-temperature thermal systems targeted by this program seek to achieve at least 700 °C, which would boost the efficiency and lower the cost of the electricity. If successful, these projects will lower the cost of a CSP system by approximately $0.02 per kilowatt-hour, which is 40 percent of the way to the office's 2030 cost goals of $0.05 per kilowatt-hour (kWh) for baseload CSP plants.

Source: DOE Office of Energy Efficiency and Renewable Energy, 5/15/18

Find more funding sources.